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Cc: [EOC Water](#)
Subject: OW Management Report for Hurricanes Harvey, Irma and Maria for 9/26/2017
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Attachments: [OW Management Report_Harvey_Irma_9262017.docx](#)

Attached and pasted below is the OW Management Report for Hurricanes Harvey, Irma and Maria for 9/26/2017.

Brian Pickard
EOC Water Desk

EPA HQ:

Water Desk Staffing for the coming week:

Tuesday 9/26: Brian Pickard

Wednesday 9/27-Thursday 9/28: Jeff Fencil

Friday 9/29: Kevin Tingley

Notable Updates

- Region 2, Puerto Rico: the USACE has received a mission assignment under ESF 3 for water and wastewater SMEs to assess PRASA facilities in response to Hurricane Maria. USACE and EPA are coordinating a potential sub-tasking for EPA support similar to that done in Florida for Hurricane Irma.
- Region 2, Puerto Rico: USACE inspected Toa Vaca and Guayabal Dams in Puerto Rico and reported no structural damage; however, both dams are releasing at higher than normal levels.
- Region 2, St Croix: A joint EPA and DPNR team sampled 9 public drinking water systems yesterday, 9/25/17, with 20 more to be sampled today, 9/26/17. These facilities are up and operating, and are part of approximately 150 total facilities on the island. Samples will be analyzed for Total and fecal coliform and E.coli utilizing Colilert kits with results available within 24 hours.
- Region 4, Florida: USACE has requested additional EPA personnel in an ongoing effort to help ascertain the status of Florida utilities. Water team members in the EPA Region 4 office have conducted 183 assessments, leaving 71 that appear to need a site visit.
- Per the Florida Department of Health's website, of the 479 Boil Water Notices issued since 9/11/2017, 353 have been rescinded and 126 are active.

Hurricane Maria and Hurricane Irma Update – Puerto Rico and US Virgin Islands

On 9/26/2017 at 0200 EDT, Maria was located 225 miles southeast of Cape Hatteras, NC with maximum sustained winds of 80 (-5) mph, with higher gusts. MARIA is moving north at 7 (n/c) mph. Hurricane-Force winds extend outward up to 105 (+45) miles from the center and Tropical-Storm-Force winds extend 205 (-25) miles. A Tropical Storm Warning is in effect from Bogue Inlet, NC to the NC/VA border, to include the Albemarle and Pamlico Sounds. A

Storm Surge Watch remains in effect from Cape Lookout to Duck, NC. MARIA is forecast to produce rainfall totals of one to two inches over the Outer Banks of NC.

On 9/20, The President signed Disaster Declarations FEMA-4339-DR for Puerto Rico and FEMA-4340-DR for the Territory of the U.S. Virgin Islands for Hurricane Maria. Additionally, the President has signed Emergency Declarations FEMA-3391-EM for Puerto Rico and FEMA-3390-EM for the Territory of the U.S. Virgin Islands for Hurricane Maria.

As of 9/24/17, the following EPA re-deployment staffing plan was provided to FEMA so flights and lodging needs can be coordinated for the first wave of EPA responders. Region 2 will keep pursuing FEMA flights, suitable lodging and berthing space on the various FEMA-supported vessels arriving in PR.

- Puerto Rico: 120 people (50 people on 9/24 + 50 people on 9/30 + 20 people on 10/7)
- St Croix: 88 people (20 people on 9/24 + 34 people on 9/28 + 34 people on 10/2)
- St Thomas: 68 people (34 people on 9/28 + 34 people on 10/2)

Region 2 continues to reach out and contact Caribbean Environmental Protection Division (CEPD) personnel post storm. Region 2 is in contact with the Director and Deputy Director and they have been able to contact thirty-one (31) of fifty-six (56) employees. In the USVI, both employees are safe.

Local/State Activities

Puerto Rico:

There is a 100% power outage in PR. The Director of PREPA indicated that the power system is non-functioning. It faced severe and catastrophic structural damage in the distribution lines and it will take many months for repairs and reconstruction.

USACE inspected Toa Vaca and Guayabal Dams and reported no structural damage; however, both dams are releasing at higher than normal levels. USACE assessment of the Guajataca Dam found the lower part of the concrete spillway slab has collapsed and the current section that is remaining appears to be undercut by approximately 15 feet. The dam is still intact but does need to be reinforced to ensure stability. The water level behind the dam needs to go down before a comprehensive assessment of the dam can be performed.

U.S. Virgin Islands (USVI):

Power outages for USVI include: St. Thomas: 19,574 (99%); St. John: 2,893 (100%); and St. Croix: 25,274 (90%). FEMA has indicated that there will be two power-supplied labs: one in St. Thomas (supplied with a functioning generator) and one in St. Croix (pending generator installation).

Emergency call centers have been activated in both island districts (7 am - 11 pm daily). The call centers will be the primary means by which residents can report service interruptions as reconstruction and restoration takes shape. The Emergency Call Center number on St. Croix is 340-773-0150 and on St. Thomas - St. John, the number is 340-774-1424.

Federal Activities

FEMA:

The USACE has received a mission assignment under ESF 3 for water and wastewater SMEs to assess PRASA facilities in response to Hurricane Maria in Puerto Rico. USACE and EPA

are coordinating a potential sub-tasking for EPA support similar to that done in Florida for Hurricane Irma.

The FEMA RRCC in Colt's Neck NJ has transferred all operations from that location to the NRCC in Washington, D.C. Personnel are developing plans for the resumption of post-storm activities, including assessments at regulated facilities and NPL/Removal sites.

On 9/20/2017, The President has signed a Disaster Declaration FEMA-4340-DR for the Territory of the U.S. Virgin Islands for Hurricane Maria. On 9/20, The President has signed a Disaster Declaration FEMA-4339-DR for Puerto Rico.

EPA Region 2 Activities

The REOC Planning and Operations Sections are using Hurricane Irma assessment plans to develop post-Hurricane Maria plans for the assessment of fixed facilities, Superfund sites, critical infrastructure, areas of special concern, and debris management. EPA's water assessment team arrived in St. Croix on 9/24/2017 to address drinking water needs and conduct wastewater assessments at facilities that service hospitals.

On 9/22/2017, EPA will meet with Harold Mark of DPNR to develop list of water purveyors to sample. Region 2 will prioritize active systems and high usage systems. Region 2 will check on WAPA to see if they have reinitiated their own chlorine residual and bacteriological test.

On 9/23/2017, EPA issued an order to FEMA and the Department of Defense (DOD) that provides direction on supplying of clean drinking water in the U.S. Virgin Islands in response to impacts to the island's drinking water system from Hurricane Maria and Hurricane Irma. The order authorizes FEMA and DOD to install and operate temporary water treatment units that will provide a supply of clean drinking water. The order is at <https://response.epa.gov/sites/12403/files/USVI%20SDWA%20Order%20Sept%2023.pdf>.

On 9/23, EPA will exercise enforcement discretion for mobile power generators being imported into the United States that will be used as emergency sources of power in Puerto Rico as a result of Hurricane Maria. This no action assurance covers mobile power generators imported to Puerto Rico until 1/31/18.

The National Disaster Recovery Framework (NDRF) has not yet been activated in either PR or the VI.

Drinking Water and Wastewater System Status

Puerto Rico:

CEPD and CWD began phone calling on the 300 non-PRASA drinking water facilities; however, as many of the facilities are remote, contact has yet to be made with a facility. Voice messages have been left.

CEPD did not begin field assessments of DW facilities, as they shifted focus to WW facility field assessments.

FAA touched base with CWD on 9/25, indicating that they wish to drill a well at one of their facilities near the San Juan Airport. The main purpose of the well is to supply water to their HVAC systems, but they also wish to use it for their staff of 40 to 60 people. They mentioned that they can use a reverse osmosis system to treat the water. The FAA indicated that they could not reach local government, and wished for EPA support. FAA mentioned that they

would obtain related technical details to share with EPA. On 9/26 R2 EPA CWD, DECA, and ORD discussed that the work described by FAA should not involve EPA, rather PRDOH. CWD has called and emailed both FAA and PRDOH, and is awaiting feedback.

CEPD and CWD awaiting PRASA DW facility operational status report, expected 9/26. PR also currently has an island-wide boil water order.

CEPD and CWD are awaiting PRASA wastewater facility operational status reports, expected 9/26/17. Of PRASA's total 52 total plants, 9 are operational, 19 are non-operational, and 24 have an unknown operational status. CEPD began WW facility assessments on 9/26/17, and will continue on 9/27/17. The planned assessments for 9/26/17 included: Lilly del Caribe in Carolina; PRASA – Carolina WWTP; PRASA – Puerto Nuevo WWTP; PRASA – Bayamon WWTP. More facilities will be added pending EPA's review of PRASA drinking water treatment plants.

Lack of power generators at certified labs in St. Croix and St. Thomas to support drinking water analysis remains an issue; sampling and analysis will take a minimum of 24 hours once the St. Croix lab is up and running.

Virgin Islands: <http://www.viwapa.vi>

On 9/23/17, EPA Region 2 issued an order pursuant to the SDWA that authorized FEMA/DOD to pump drinking water to the USVI. FEMA/DOD are working to deploy 4 Reverse Osmosis (RO) units in St Croix to deliver drinking water to the following impacted areas (Stoney Ground, Cane Bay, Altima and Cramer Park). The EPA Order expires on 10/8/17.

Tentative locations for the RO units have been selected on the Western side of the island, but treatment has not started. FEMA received a generator to begin pumping water, that will ultimately feed to the RO units. FEMA is also expecting a generator delivery (evening 9/26) to the Eastern side of the island, which will power a water quality testing lab. FEMA's plan is to test already-sampled water from the Western island, to determine if RO unit tentative locations remain or change. FEMA will be able to share more information 9/27.

DPNR wants EPA to conduct sampling, especially bacteria, and analysis. They also would like any ice being brought to the USVI analyzed for bacteria, at a minimum.

St. Croix: A joint EPA and DPNR team sampled 9 public drinking water systems yesterday, 9/15/17, with 20 more to be sampled today, 9/26/17. These facilities are up and operating, and are part of approximately 150 total facilities on the island of St. Croix. Samples will be analyzed for Total and fecal coliform and ecoli utilizing Colilert kits with results available within 24 hours.

Per the VIWAPA website, Seven Seas water production facility is online and stabilized after weekend work corrected high voltage challenges. The Richmond and Contentment pump stations are online and functioning normally as potable water service is being provided to a growing number of St. Croix residents.

St. John: Per the VIWAPA website, there are four days of water storage. Additional storage is building and potable water service remains available throughout Cruz Bay

St. Thomas: Per the VIWAPA website, there are three days of storage. All areas east of town have been restored with potable water service. Work will continue to restore the Havensight area and more of Estate Bakkeroe. The Bergs Home pump station had been repaired but suffered damage to its weather head preventing the station from being re-energized with electrical service.

There is no information on wastewater facility status in USVI at this time.

Hurricane Irma Update – Florida and Georgia

Local/State and other Federal Agency Activities

All Region 4 State EOCs, with the exception of Florida, are back to normal operations.

The FEMA Region IV Regional Response Coordination Center (RRCC) transitioned from Level II (full activation) to normal operations. All members of the RRCC were released, including staff under ESF-10.

The Florida City Water Team relocated to Key Largo and met with the Key Largo City Engineer on 9/25/17 to discuss the scope of work. The Naples Team met with FEMA to discuss remaining mission requirements. The Team will assess a nonoperational system in Glades County today. Region 4 FAST, the USACE/EPA Naples Water Team, and FDEP will hold a conference call to finalize the plan to assess the status of 3,561 non-community public water systems.

EPA Region 4 Activities

The EPA Region 4 Water Protection Division (WPD) received funding totaling \$75,000 under an ESF-3 MA sub-task to support the U.S. Army Corps of Engineers (USACE) drinking water and wastewater facility assessments. The WPD continues to coordinate with the Florida Department of Environmental Protection (FDEP) and the USACE. The U.S. Army Corps of Engineers' (USACE) request for additional ESF-3 support has been fulfilled.

The Region 4 Facility Assessment Support Team (FAST), completed 934 call-down assessments as of 9/21/2017. EPA Water Team performed an assessment of the Waste Water Treatment Plant (WWTP) in Everglades City on 9/21/2017. The USACE/EPA Water Team completed assessments in Everglades City and redeployed, 9/22/2017, to Key Largo to assess the WWTP. The USACE/EPA Water Team inspected booster stations along the drinking water pipeline to Key West.

As of 9/25/2017, the USACE and EPA Water Protection Division (WPD) continue to assist FDEP in assessing the status of drinking water and wastewater facilities. The Florida City Water Team relocated to Key Largo and will meet with the Key Largo City Engineer today to discuss the scope of work. The Naples Team met with FEMA to discuss remaining mission requirements. The Team will assess a nonoperational system in Glades County today. Region 4 FAST, the USACE/EPA Naples Water Team, and FDEP will hold a conference call today to finalize the plan to assess the status of 3,561 non-community public water systems.

USACE has requested additional EPA personnel in an ongoing effort to help ascertain the status of Florida utilities. Water team members in the EPA Region 4 office have conducted 183 assessments, leaving 71 that appear to need a site visit.

Drinking Water and Wastewater System Status

Florida: See tables below for damage assessment information for community drinking water systems and POTWs.

Boil water notices and advisories are published on the Florida Department of Health's website (<http://www.floridahealth.gov/environmental-health/drinking-water/boil-water-notices.html>). As of 1600 ET, 9/26/17 the web site lists 479 BWN issued since 9/11/2017, of which 353 have been rescinded, resulting in 126 active BWN. The website reflects a lower number of BWN than in the table below, which was provided by Region 4 at 0900 ET, 9/25/17.

Total Number of Community Drinking Water Systems (CWS) and Total Population Served in Florida				
	Large CWS (Over 3,300)		Small CWS (under 3,300)	
	# Systems	Population Served	# Systems	Population Served
Operational:	390	19,101,966	1,179	678,066
Partially Operational:	6	188,818	15	16,284
Non Operational:	0	0	6	456
Unknown:	0	0	44	15,747
Totals:	396	19,290,784	1,244	710,553
Boil Water Notices	173 (478 issued – 305 rescinded)			
Comments: Data is compiled from the State of Florida's StormTracker system. The inventory of public water systems in StormTracker consists of all 1,630 Community Water Systems (CWS) and 11 non-community public water systems regulated by the State. These facilities were identified by Florida as the most critical for operational status determinations following major disasters. For convenience, all 1,641 facilities are reported as “CWS” in this table.				
Operational: Facility producing drinking water for greater than 90% of customers under normal operating conditions				
Partially Operational: Facility producing drinking water under adverse conditions and/or supplying less than 90% of customers				
Non Operational: Facility not producing or supplying drinking water				
Unknown: Status of facility unknown at this time				

Total Number of Publicly-Owned Wastewater Treatment Plants (POTWs) All Florida Counties			
	NPDES Permitted Facilities		State Permits (Non-NPDES)
	POTW	Non-POTW (Industrial)	
Operational:	143	242	1,702
Partially Operational:	2	1	41
Non Operational:	0	0	93
Unknown:	0	0	173
Totals:	145	243	2,009
Comments: Data is compiled from the State of Florida's StormTracker system. The			

NPDES universe tracked in StormTracker represents a subset of the total inventory of NPDES permitted systems that are identified by the State of Florida as the most critical for operational status determinations following major disasters.

This report shows that 99% of the POTWs are Operational, no change since last report of 99%.

This report shows that 99% of the Non-POTW NPDES Permitted Facilities tracked in StormTracker are Operational, no change since last report of 99%.

***Operational:** Facility & associated collection system is properly conveying, and effectively providing wastewater treatment, in accordance with applicable permit conditions and regulations. (Operating on full or backup generator power.)*

***Partially Operational:** Facility and/or associated collection system is properly conveying and providing wastewater treatment at a compromised capacity, i.e. one or more treatment train components are non-operational, one or more lift stations are non-operational, etc.*

***Non Operational:** Facility and/or associated collection system is not providing wastewater treatment in accordance with applicable permit conditions and regulations.*

***Unknown:** Status of facility unknown at this time*

Georgia: See tables below for damage assessment information for community drinking water systems
(last update: 9/20/2017).

Total Number of Community Drinking Water Systems (CWS) and Total Population Served in Georgia		
	# Systems	Population Served
Operational:	186	7,203,619
Operational w/ Conditions:	8	53,917
Non Operational:	3	40,322
Unknown:	**	2,424,980
Totals:	1,749	8,917,820
Boil Water Notices	75 Boil Water Advisories reported to the SOC.	
Comments: Data is compiled from data collected by Georgia EPD drinking water staff, EPD regional offices and the ESF-3 Water Desk at the Georgia SOC. The inventory of public water systems in <i>Georgia</i> consists of all 1,749 Community Water Systems (CWS). **EPD has provided status updates of all community water systems with surface water sources. All community water systems using ground water are being contact by EPD District Offices and associated resources requests are forwarded to the SOC ESF-3 desk. All community water systems using surface water as a source have been assessed.		
<u>Operational:</u> Facility producing drinking water for greater than 90% of customers under normal operating conditions.		
<u>Operational with Conditions:</u> Facility producing drinking water under consumer advisory,		

e.g., boil water advisories issued by water systems.

Non Operational: *Facility not producing or supplying drinking water*

Federally Recognized Tribes:

No significant updates were provided by the Region 4 Tribes during the reporting period.

Hurricane Harvey Update

Federal Activities:

Cost-share for response activities increased to 10% at midnight on September 22, 2017.

Response efforts associated with Hurricane Harvey have transitioned to recovery.

EPA Region 6 Activities:

Drinking water and wastewater assessment teams completed their emergency assessments of community water systems and have demobilized. The information below is from the Texas Commission on Environmental Quality website at

<https://www.tceq.texas.gov/response/hurricanes>; last update was 9/22/17.

Drinking Water	Number of Drinking Water Systems	Population
Fully Operational	2,233	920,988
Boil Water Notices	46	14,446
Shutdown	5	1,088

Wastewater and Sewage	Number of Wastewater Treatment Plants
Fully Operational	1,719
Inoperable	9
Operating with Issues	25